

Counting Crows' **Dan Vickrey** on Guitar Recording

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**Zoom H4n**  
an all-in-one  
field recording  
masterpiece



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# REVIEW

BY MIKE METLAY

## Zoom H4n Handy Recorder

New design plus new features equals  
a new portable recording experience

We could go all the way back to the PS-02 and PS-04 Palmtop Studios (reviewed July 2001 and August 2004) to establish Zoom's credentials in the realm of recording devices any musician could toss in a gig bag, but the recorder that really got everyone's attention was the H4 Handy Recorder, reviewed in our May 2007 issue. It was a true 4-track recorder, combining a built-in XY mic array with a pair of XLR mic inputs, and had built-in effects and USB interfacing/data-download capabilities as well as guitarist-friendly features like a tuner and metronome. But we downchecked the H4 for its small and cramped display, its one-way USB card reading, and especially its hard-to-use controls, with a central "hat switch" that was too easily mis-pressed to cause all manner of unwanted mistakes.

Well, you have to say this about Zoom: they listened, and they delivered. The H2 we reviewed in September 2008 (the successor to the H4) sported a completely redesigned user interface, a very cool four-capsule mic array for stereo and surround recording, improved interfacing with computers, and more. It almost obsoleted the H4... only almost, because it lacked the H4's pro-studio mic connectivity, and because the H2's line-level inputs, set to the "prosumer" -10 dBV standard, couldn't handle +4 dBu signals without clipping unless an external pad was applied.

At NAMM 2009, Zoom rolled out the H4n. The "n" stands for "next", but we would argue that it could easily stand for "new place to set the bar for recorders of this type". This thing does so many recording and interfacing tasks it's almost scary, and it does them all anywhere from very well to brilliantly. Let's check it out.

### In the box

The H4n is a handheld stereo or 4-track recorder that stores data on SD or SDHC cards up to 32 GB in size (it comes with a 1 GB SD card that will do fine for getting you started). At roughly 6" x 3" x 1.5" and 10 ounces, it's a bit bigger and heavier than most of the competition, but a lot of this is due to its larger cable connectors, large backlit LCD, and rugged rubberized-metal body. There's no wasted bulk or space.

It has a built-in stereo mic array, a pair of XLR- $\frac{1}{4}$ " TRS combination inputs (with 24V or 48V phantom power available), and a  $\frac{1}{8}$ " TRS input for an external stereo mic. There's a USB port and a  $\frac{1}{8}$ " TRS output that doubles as a line-level out and a headphone out—about the only shortcoming in this unit's interfacing, since you can't feed a mixer with it and monitor on headphones at the same time. There's a jack for the optional RC4 wired remote, a small built-in monitor speaker for quick recording checks, and a hidden switch

for Stamina Mode, which limits recording options and other features in exchange for greatly extended battery life. (Speaking of batteries—the H4n takes two AA cells, standard alkaline or NiMH rechargeables.)

In Stereo mode, the H4n records MP3 files of 48 to 320 kbps quality (constant or variable bit rate), or WAV files of 16 or 24 bits resolution at 44.1, 48, or 96 kHz. Unlike previous models, the H4n offers two different 4-track recording modes: 4CH, where the device can record two tracks from the built-in mics plus two from an external stereo mic or from the mic/line inputs, and the new MTR mode, which turns the H4n into a basic 4-track desktop recording studio with built-in mixer, effects, track bouncing, and file/project management that allows effects and tracks to be shared between song sessions. These modes only record WAV files: 16 or 24 bits/44.1 or 48 kHz in 4CH, and strictly 16/44.1 in MTR.

The H4n comes standard with an almost complete set of accessories—the remote is optional, but everything else comes in the box. There's a windscreens, 1 GB SD card, USB cable, 5VDC power adaptor, thick and profusely-illustrated paper manual (huzzah!), CD-ROM with Steinberg Cubase LE recording software for Windows/Mac, and a mic stand adaptor that screws into the bottom of the H4n and

mimics the body shape of a standard hand-held microphone, so an ordinary mic clip can hold the H4n securely.

The last item in the box is something so simple and clever I'm amazed no one's thought of it before this: a custom-fitted clear plastic case for the H4n that protects it against scratches and bumps while it's banging around in your backpack or gig bag. It's a huge improvement over the usual drawstring bags and leather wallets with flaps that get caught on things, and teensy accessory pockets you never use anyway!



## REVIEW

Getting started on the H4n can be done without looking at the manual, but there are so many features under the hood that a thorough perusal is a good idea. Unlike the H4, which consolidated far too many operations on its central hat-switch, the H4n has a widely distributed set of controls, easy to differentiate and work by feel. Transport controls are on the front face, with a brightly lit and well-separated Record button (that also drops markers on the fly into WAV files as they're recorded—MP3 files don't support this capability). Four backlit buttons select tracks in MTR mode or call up file/folder menus or basic record-mode settings, and three more backlit buttons select the built-in mics or the two Inputs. The Power switch has a Hold mode that locks out the controls from accidental touches.

Rocker switches increment/decrement input gain and output volume, and a scroll/click wheel and Menu button allow quick navigation of the clearly laid-out menus... of which there are many, since this device does so much. But they're clearly labeled and sensibly grouped, so once you learn a few rules you can usually find what you need without much fuss.

Once you put in the batteries (the H4n doesn't recharge NiMH batteries when plugged into AC power) and the SD card (we recommend formatting it before use, although the H4n will prompt you if the card's not immediately usable out of the box), you just select your Record Mode and choose where you want to see your input signals (Mic or Inputs 1/2). Pressing the Rec button puts you in Record/Pause mode (the red light flashes), so you can see input signals on the large LCD's meters and set your gain for your chosen inputs (adjustable per stereo pair). When you're ready to record, press Rec again, it lights up steady red, and you're recording. There's a large elapsed-time display, file name display, and markers for digital overs on each channel, and clear and easy-to-see status monitors for effects in line, remaining record time on the card, etc..

The metal mic capsules are angled to provide 90° XY single-point recording, or can be rotated to click into place for 120° recording as well. This is *not* ORTF, which requires a spacing of several inches between the capsules as

well as the 120° angle, but does provide an interesting and spacious stereo sound. In our tests, the mics provided clean, clear stereo recordings with good soundstaging in both modes, with gobs of gain in the preamps.

While the H4n reportedly has less handling noise than its predecessor due to its damped and rubberized body shell, handling noise was still very obtrusive in our tests. With a stereo recording peaking at around -6 dBFS, pressing the Rec button to set a marker or adjusting the monitor volume rocker switch produced a -24 dBFS click in the audio. Get the remote, or keep your hands off the H4n while you're using it!



There are tons of extra features under the hood, including a good-sounding set of effects for track sweetening in MTR mode, a tuner, a metronome, etc., but mixed in with these are some really solid utilities for the serious recordist.

One such item is the Comp/Limit effect, which allows compression or limiting strapped across the inputs to prevent digital overs. There are three presets for each, and I got into the habit of leaving Limit1 on my input signals at all times; you don't notice it until something really loud comes along, and then it holds your signals down where you don't get digital crunch—a nice safety feature.

There are three modes for automated recording control. First, there's an Auto Record mode that starts recording

when input passes a certain threshold, and stops again when input drops below another threshold if you wish. Second, a Pre Rec mode has the H4n constantly recording and buffering audio even when it's stopped, and automatically saves the 2 seconds of audio from before you press the Record button, when you finally do start recording. And third, there's Rec Level Auto mode, where the H4n monitors levels as you record, and whenever you go above -6 dBFS, it turns down your recording level for you.

You can have any one of these three automated-recording modes active at one time. My personal preference is for Pre Rec mode, if any; Rec Level Auto mode, if fed music with a lot of sudden dynamic peaks, will steadily turn down your level over time and produce an overall lowering of average track volume that will be hard to correct later. I prefer the Limiter, which works and sounds fine... or just turning down the input level and running in 24-bit mode for more headroom.

There's a low-cut filter that you can set to a corner frequency from 80 to 237 Hz depending on your needs. I liked the very lowest setting for removing mic-stand rumble from recordings with the built-in mics.

Another very cool built-in extra: Mid-Side matrixing, so you can hook up a cardioid mic to one Input and a figure-8 mic to the other, and end up with ready-to-use L/R files. If you use this in 4CH mode, the H4n allows you to select Mic or Input as a source. At first this seems odd, as the built-in mics aren't an M-S array and matrixing them won't work... until you remember the 1/8" external mic jack that supersedes the built-in mics. If you have a self-powered M-S mic with the right connector, the H4n will decode it for you on the fly. Neat!

The H4n is a USB 2.0 device. If you attach its USB cable to a computer (Windows or Mac) while it's powered off, it will automatically boot up and ask you if you want to use USB as an audio interface or an SD card reader. In the former case, you have a number of options for feeding stereo input to your computer, and in the latter, the H4n appears as a data volume on your desktop with the usual drag-and-drop file transfer options. It can be bus-powered from the USB cable, or you can choose to power it via the AC adaptor; this is an important capability, as some USB bus-power schemes can create ground loops and cause hum in your signals, depending on your computer and your studio's wiring.





## Zoom H4n Handy Recorder

In both modes, the H4n worked flawlessly on our Windows and Mac test machines, moving data at lightning speed (a 1.0 GB file was offloaded in under two minutes) and providing plug-and-play 24-bit stereo input at 44.1 or 48 kHz sample rates from either the mics or the Inputs. There's a zero-latency monitoring function available, and you can even record with the internal effects if you're running at 44.1 kHz.

### Experiences in use, ponderings afterward

I got to know the H4n in a big hurry; my good friends and fellow *Recording* contributors David Herpich and Darrell Burgan arrived in early April to help me write and perform a music set for a live audience at the Fiske Planetarium in Boulder, Colorado, for the annual celebration of Yuri's Night, the anniversary of mankind's first mission into space ([www.yurisnight.net](http://www.yurisnight.net)). As we listened to playback of our early test sessions, we realized that our main digital recorder had developed a nasty glitch and was recording a pulsing noise artifact under our mix. As the current generation might say: "Epic fail."

Darrell and David looked at me with that familiar "You'll make everything okay just like you always do, right, Dr. Mike?" look. Remembering Metlay's Second Law of Live Sessions ("Any *usable* solution, if implemented in good time, beats the *best possible* solution implemented too late"), I signed out the H4n from *Recording's* review studio and put it to work. I had it up and recording our rig in under fifteen minutes... and ten of those minutes were taken up with a drive to the local electronics store for an 8 GB SDHC card!

The H4n worked like a champ for the next six days, recording nearly 7 GB of 24-bit/44.1 kHz audio via the Inputs. The results were flawless. Clean, clear audio, with nary a grumble or hiccup, handling overs with aplomb thanks to the built-in Limiter, with nearly five hours of usable recordings suitable for album release at the end of it all. As the current generation might say: "Epic win."

After that session was done, I did field recordings of nature sounds and of acoustic music in a couple of different rooms with the built-in mics, and was very pleased with the results, especially in the standard 90° setup,

which produced nice natural stereo. The 120° mode's slightly wider soundstage was fun to hear but not quite as photorealistic to my ears, but I'll bet some recordists will find it useful for boosting the sense of realism in a narrow or boxy-sounding recording room. Aside from handling noise (I didn't get to try the remote), my experiences were very pleasing all around.

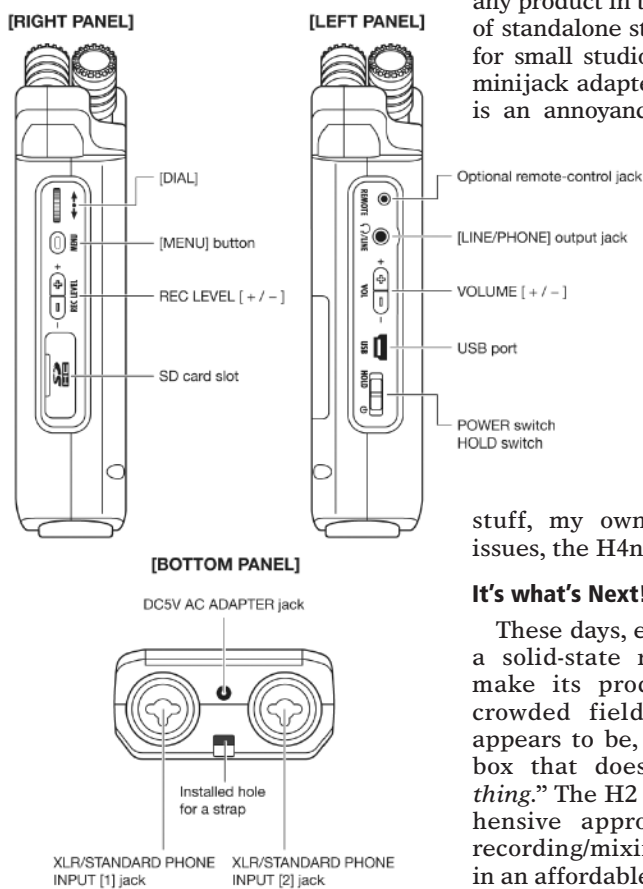
Do I have complaints? A few, and they're small and mostly related to personal tastes and applications. While it's true that not everyone

as mono and stereo WAV files for DAW work, but users should be aware that the controls on the H4n, optimized for fast work in stereo, leave a lot to be desired in MTR mode; it's easy to arm tracks and select inputs, but mixing and panning are done with the scroll/click wheel, channel by channel, and aren't very quick or intuitive.

If I could design *my* ideal version of the H4n, it would be functionally almost identical to this one, but instead of having the stereo mics built in, it would have two extra 1/4" TRS balanced inputs, and some form of proper line-level outputs, on the top of the case, so I could set it atop my mixing console and hang the cabling over the back of the mixer. Given that this recorder could easily replace almost any product in the previous generation of standalone stereo recording devices for small studios, having to use a 1/8" minijack adapter cable for monitoring is an annoyance. A version purpose-

built for studio users who don't need field-recording mics would be really cool. (As it is, I guess I'll have to wait for the prototype unit Zoom showed under glass at NAMM... a tiny desktop multitrack SD recorder with audio interfacing and a control surface built in.)

As I said... minor stuff, my own tastes. On the big issues, the H4n doesn't stumble once.



needs a remote control for a small recorder, the H4n's handling noise makes the RC4 a vital addition for serious field recording. Also, the remote's feature set—Record/Mark, full transport controls, record and output level controls, and mic/input select—beat the feature-limited remotes on much of the competition, if they have remotes at all, so... long story short, I rather wish they'd simply elected to include the RC4 in the box.

MTR mode may well be a life-saver for musicians who want to grab demo ideas on the road and bring them back

### It's what's Next!

These days, each company building a solid-state recorder is trying to make its product stand out in a crowded field. Zoom's philosophy appears to be, "Give the customer a box that does pretty much *everything*." The H2 hinted at this comprehensive approach to pocket-sized recording/mixing/interfacing/storage in an affordable package, but the H4n runs with it clear across the goal line.

The term I'd use for the H4n would be "confidence-inducing"; I never once found myself glaring suspiciously at it over my shoulder as I played, worrying about whether it would do its job to my satisfaction. That level of confidence in the music-making process is worth a lot these days. ➤

**Price:** \$609.99 (\$349 street)

**More from:** Zoom/Samson Technologies, 45 Gilpin Ave., Hauppauge, NY 11788. 631/784-2200, [www.samsontech.com](http://www.samsontech.com).